

# safety-kleen® FIFTY YEARS

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RETURN RECEIPT REQUESTED

December 14, 2015 

Nickie Geros  
East Chicago Sanitary District  
5201 Indianapolis Blvd.  
East Chicago, IN 46312

RE: Certification Statement  
Centralized Waste Treatment  
Safety-Kleen Oil System, Inc.  
Permit # 0901  NOTE

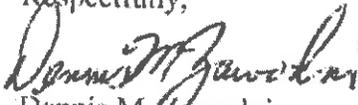
NOTE  Dear Ms. Geros:

Enclosed please find a Certification Statement that this facility is able to provide equivalent treatment to meet the Centralized Waste Treatment standards found in 40 CFR 437.25 (Subpart B).

Changes made to the treatment process are listed in the certification. None of the changes were made for the purposes of meeting the CWT standards.

If you have any questions, please feel free to contact me at 219/391-6127.

Respectfully,

  
Dennis M. Davodni  
Environmental Manager

Enclosures

Safety-Kleen Systems, Inc.  
601 Riley Road | East Chicago, IN 46312  
219.397.1131 | 219.391.6180 (t)



**Safety-Kleen Corp.**  
**Baseline Monitoring Report Form**  
**Centralized Waste Treatment Facilities (CWT)**

Identifying Information:

Facility Name: Safety-Kleen Systems, Inc.

Physical Address: 601 Riley Road  
East Chicago, IN 46312

Mailing Address: Same

Name of Owner / Operator: Safety-Kleen Corp.  
2600 North Central Expressway  
Suite 400  
Richardson, TX 75080

On Site Contact: Jason Shoff

Phone Number: (219) 391-6100

Fax Number: (219) 391-6180

Permit Information

Environmental permits held by this facility.

IDEM Air Permit: No. 089-00301  
IDEM/EPA TSCA Storage & Disposal Permit/Approval  
East Chicago Sanitary District: Permit No. 901

## Description of Operation

Safety-Kleen System, Inc.'s re-refinery operates 2 basic processes, distillation and hydrotreating.

Used oil is distilled in a three-stage distillation system. The first step removes the water and any light hydrocarbons (e.g. gasoline and solvents). These materials are removed as a vapor, then condensed and separated. A fractionation unit separates the water and the light fuel which is used as a supplemental fuel in the process heaters at the site, or is sold as either an on or off-specification used oil fuel.

The water generated in the re-refining process contains contaminants which are removed through further distillation prior to treatment in the Facility's Waste Water Treatment Plant. These contaminants include sulfur compounds, ammonia, gasoline, alcohols, solvents and ethylene glycol from Anti-freeze. The pretreatment step occurs in a stripper called the Light Ends Recovery Tower (LERT). The water present in the incoming used oil and any process waters are fed to the LERT at different points depending on their physical and chemical characteristics. The LERT is a fractionation tower with a combination of trays and packing as internal components. The lower section of the LERT is designed to concentrate the higher boiling contaminants including trace amounts of oil and the Ethylene glycol. The Ethylene Glycol rich stream is segregated and sold as a recyclable product. The upper section of the LERT concentrates any low boiling point contaminants including gasolines, solvents, sulfur and nitrogen compounds. This stream is condensed and recovered as a fuel which is utilized in the re-refining process. The stripped water is removed as a side product and directed to the on-site waste water treatment plant.

The dehydrated oil is then subjected to a second, more severe distillation step, vacuum fuel stripping (VFS) where the remaining fuel oils are removed using vacuum distillation. During vacuum distillation, the oil is moderately heated under a vacuum, which causes the light fuels present to boil at lower temperatures. This avoids the high temperature conditions which would otherwise cause the hydrocarbon chains to crack or coke up. The vapor generated during this vacuum distillation stage is condensed to form a fuel similar to home heating fuel. This fuel is either used as fuel at the re-refinery, or sold as an on-specification used oil fuel.

The third distillation step is utilizes a vacuum flash tower and two thin film evaporators. In the vacuum tower, the oil is subjected to high temperatures and low pressures, vaporizing the lighter lube oil fraction. This vapor is condensed and collected as lube oil. A set of wiper blades spread the heavier oil against the wall of the vessel, a heat exchanger, to help this material evaporate. A special high temperature heat transfer fluid is used to heat up the exchanger. Two grades of lube oil is produced in this third stage. Any material that does not evaporate in the evaporators is recovered and sold as an asphalt extender material, for use in refining and asphalt paving.

The oil fractions produced in the third distillation stage, are then treated in the hydrotreater to purify the oil. This step uses hydrogen gas in a high temperature, high pressure, catalyzed reaction to remove sulfur, chlorine, oxygen, and other impurities from the oil.

The lube oil produced is considered base stock. The subsequent blending in of a variety of additives will produce the products familiar to most: motor oil, transmission fluid, hydraulic fluid etc. In Safety-Kleen's re-refining process, 98% of every "dry gallon" of used oil collected is returned to a full and useful life as a lubricant, a fuel or an asphalt extender.

#### Oily Water Processing/Emulsion Breaking

The East Chicago facility is capable of processing high water content used oil. Used oil containing greater than 75% water is directed to one of four emulsion breaking tanks. Each tank has a capacity of 28,500 gallons. The emulsion breaking process consists of pH adjustment, chemical treatment using a demulsifier and heating up to 150 F°. The water level can be sampled at any of a number of levels in the tank. These sample points are used to determine where a clean oil/water break is established. The water phase is drawn off and routed to the facility's waste water treatment plant and the oil phase is pumped to the re-refinery feed tank.

#### Waste Water Treatment

Safety-Kleen Oil Recovery Co. operates a wastewater treatment facility to treat waste waters generated from the re-refining and fuel processing operations and storm water captured within the dike areas. All plant wastewater is directed to equalization tanks. The water is pumped through an Oil/Water separator to remove any free oil present. The water is then pumped to a mix tank where it is pH adjusted and alum and polymers are added. After mixing, the water is pumped to a dissolved air flotation unit (DAF) for further dissolved oil and metals removal.

Solids from the DAF are removed from the unit, and returned to the fuel oil processing facility to further recover any residual oils. Effluent from the unit is discharged to the biological treatment tanks. Effluent bio tanks pumped to a clarifier where any biological solids are removed. Prior to discharge to the East Chicago Sanitary District, the water is pumped through a chlorine break tank where sodium hypochlorite (bleach) is added to oxidize any cyanide that may be present.

The average discharge from the facility is 137,000 gallons per day. The maximum discharge is 200,000 gallons per day. Average monthly discharge is 4,163,594 gallons.

Attached is a schematic process diagram, which indicates each treatment process and points of discharge to the BSA from the regulated process.

#### Average rate discharge:

137,000 gallons per day.

4,163,594 gallons per month.

#### Additional Facility Information

SIC Code: 2992

NAICS: 324191

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Applicable Pretreatment Standards

NOTE  
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40 CFR 437 Subpart A – Metals Treatment and Recovery	[ ] yes or [x] no
40 CFR 437 Subpart B – Oils Treatment and Recovery	[x] yes or [ ] no
40 CFR 437 Subpart C – Organics Treatment and Recovery	[ ] yes or [x] no
40 CFR 437 Subpart D – Multiple Waste Streams	[ ] yes or [x] no
• Combined waste receipts from Subparts A, B, and C	[ ] yes or [x] no
• Combined waste receipts from Subparts A and B	[ ] yes or [x] no
• Combined waste receipts from Subparts A and C	[ ] yes or [x] no
• Combined waste receipts from Subparts B and C	[ ] yes or [x] no

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→

No other categories and subparts apply to the facility.

Measurement of Pollutants:

Sampling and analysis of each pollutant designated in the applicable subpart of 40 CFR 437 as designated above has been performed. Sampling was accomplished according to appropriate protocols and all associated paperwork has been included as an attachment to this submittal.



**Table of Parameters and Current Compliance Status**

<b>Parameter</b>	<b>Pretreatment Standard being met?</b>	<b>Will Pretreatment Equipment or Operations and Maintenance be needed to meet the limit?</b>
Antimony	Yes	No
Barium	Yes	No
Chromium	Yes	No
Cobalt	Yes	No
Copper	Yes	No
Lead	Yes	No
Molybdenum	Yes	No
Tin	Yes	No
Zinc	Yes	No
Bis(2-ethylhexyl) Phthalate	Yes	No
Carbazole	Yes	No
n-Decane	Yes	No
Fluoranthene	Yes	No
n-Octadecane	Yes	No

## Changes to Treatment Process Since Original Certification

1. Set up automatic feed system on flow control for the injection of aluminum sulfate into the effluent of the initial wastewater surge tank (T-601), prior to the Oil/Water Separator, to aid in oil/water separation.
2. At the inlet to the Dissolved Air Flotation (DAF) aluminum sulfate and a polymer is injected for removal of fluorides and assist with oil/water separation.
3. The Bio tanks (T-603/T-604) have been modified to increase the overflow height, which results in a longer retention time.
4. A permanent Belt Filter Press was constructed to allow for continual control of the sludge inventory in the Bio tanks.
5. A second break point tank (T-624) was added to maximize contact time with the sodium hypochlorite.
6. Sodium hypochlorite addition is now under Oxidation-Reduction Potential (ORP) control.
7. Sodium Bisulfite is injected into the Oxidation tank (T-625) effluent using ORP control, as a dechlorination agent.
8. All pre-treatment chemicals (except for flocculant at clarifier) have been put on automatic controls.

